

SGMA and the Challenge of Groundwater Management Sustainability

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By Bill Blomquist

It isn't just the groundwater that has to be sustainable; it's the management too.

That's why the title of this post shifts from the more familiar "sustainable groundwater management" to "groundwater management sustainability." This perspective doesn't come from the world of hydrologic or climate or environmental science, but from political science and other disciplines focused on human institutions and behavior.

Along with the development and use of information, the greatest challenge in groundwater sustainability is governance and decision making. Over several decades we have learned that governance is at least as important in environmental management and protection as are science and data. That's saying a lot, because science and data are critical. Understanding institutions for governing human interactions with the environment and with other humans is at that critical level or greater.

The challenge of governance and decision-making involves dealing with scales and levels, the legal and regulatory framework, and multiple publics and values; also, supporting and institutionalizing innovation, adaptation, and learning. Plainly this is complicated, and like the challenge of information, it is unlikely to be solved once and for all.

The treatment of institutions in policy analysis versus political science

Institutions come up a lot in policy discussions. Policy discussions generally follow this form: "What should we do about X?" Fill in the "X" with the relevant policy topic—groundwater sustainability, mass transit, international terrorism, etc.—and the policy discussion ensues, with varying voices and perspectives advocating one solution or another.

Institutions generally appear in these kinds of policy discussions as prescriptions. They are advocated for their predicted beneficial effects in remedying the illness – the "X" — that's under discussion.

Got a groundwater problem? Take some private property rights plus a market and call me in the morning, or take a public trust doctrine plus a regulatory agency, or take a comprehensive watershed management authority, or take a public participation process plus some citizen science... etc.

These institutional prescriptions are usually available only in ideal form: well-defined property rights and a well-functioning market, agencies selflessly pursuing the public interest, and so on.

Political science discussions are different. In political science the most important question isn't, "What should we do about X?" It's "Who gets to decide what we're going to do about X, and how?" That leads us into the world of governance and decision making, with its messiness of competing interests, conflicting incentives, rhetorical framing of issues, ideological predispositions, and seemingly endless blocks, countermoves, and end-runs.

To some extent this is a distinction between thinking about institutions as ideal types versus thinking about institutions as problematic human creations. The latter approach involves lifting the hood and applying some diagnostics. That means knowing what to look for and what questions to ask once the hood is up.

Institutional diagnostics—questions to consider if you're trying to make the management sustainable

To implement the Sustainable Groundwater Management Act (SGMA), people in 127 groundwater basins across California are developing groundwater sustainability agencies (GSAs) that will be required to develop, adopt, and implement groundwater sustainability plans (GSPs). That's a governance challenge of the first order, and it involves creating new institutions or adapting existing ones for new purposes.

I strongly recommend the recently published report by Kiparsky et al (2016) on criteria for evaluating GSAs: scale, human capacity, funding, authority, independence, participation, representation, accountability, and transparency. Because those are good criteria for *evaluating* GSAs, they are also good criteria to take into account when designing them.

The authors of that report have done an excellent job of defining and explaining their criteria and their significance. I will add here a few thoughts about one of the criteria they cover—representation—and then add another criterion that is especially important for the notion of "management sustainability."

Representation is critically important to governance and decision-making. If a GSA will be a new entity, for instance, what will its governance structure look like? Will the members of its governing board represent districts, represent specific constituencies, or serve at large? And if an existing entity is going to assume the responsibilities and gain the authority of a GSA, are there any changes to its internal representation and decision-making structures and processes that should be made?

Either way, will communities or stakeholders within the basin be represented equally or proportionally? If proportionally, relative to what? Are all stakeholders equal—or, rather, should they all count equally when it comes to making groundwater management decisions? Do some have more weight because of a judgment about their stake in groundwater management? Pumpers, for example, could reasonably be said to have site-specific investments and dependence on the resource to a greater extent than others. On the other hand, if pumpers have primary control over decision-making about an overdrafted groundwater basin, will it always be a situation of "the diet starts tomorrow?" Last but not least, how can the composition of the governing body be adjusted if and when the constellation of interests and uses change?

That brings me to the criterion I'd like to add in designing GSAs and GSPs: *adaptability*.

An observed fact from the messy world of governance and decision-making is this: no matter how carefully and well we design institutions, we won't get everything right the first time. Also, conditions will change in ways that alter the fit between what we put in place at one time and what comes along to confront us later.

That will surely be true for the GSAs being designed in the basins starting SGMA implementation now. Despite everyone's best efforts in constructing these governance structures, there will be errors and surprises. It will be essential to build in processes for modification. People engaged in the hard work of groundwater management in overdrafted basins (Porse 2015) will need to make rules not only for changing groundwater use and managing the basin; they'll need to make rules for how and when the rules themselves can be changed.

Creating a decision-making body for groundwater management isn't just solving a problem; it's writing a *constitution*. Writing a constitution is an intricate task, where decisions about one element are often linked to and affect other elements. Long-standing and relatively successful constitutions—the sustainable ones, we might say—are the ones that can be adjusted when needed.

SGMA implementation will be hard, in ways that have already been predicted and discussed (Moran and Cravens 2015, Moran and Wendell 2015). By equating it to constitution making, I don't mean to make it sound even harder. But I think it helps to conceive of it that way. It helps us think beyond the immediate circumstances of the moment and consider the ways in which we are designing a decision making process that will have to address circumstances well beyond this moment. And that, in turn, is likely to make us think now about how we want to be able to adjust then.

As Californians design GSAs and GSPs, they are designing institutions for governance and decision-making. That's a somewhat different, and I hope useful, way of thinking about the task that lies ahead. Thinking about it that way may help encourage everyone to think about the sustainability of the management as well as of the groundwater.

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Further Reading

Kiparsky, Michael, Dave Owen, Nell Green Nylen, Juliet Christian-Smith, Barbara Cosens, Holly Doremus, Andrew Fisher, and Anita Milman (2016) [Designing Effective Groundwater Sustainability Agencies: Criteria for Evaluation of Local Governance Options](#). Berkeley, CA: Wheeler Water Institute, UC Berkeley School of Law

Moran, Tara and Amanda Cravens (2015) [California's Sustainable Groundwater Management Act of 2014: Recommendations for Preventing and Resolving Groundwater Conflicts](#). Stanford, CA: Water in the West Program, Stanford University Woods Institute for the Environment

Moran, Tara and Dan Wendell (2015) [The Sustainable Groundwater Management Act of 2014: Challenges and Opportunities for Implementation](#). Stanford, CA: Water in the West Program, Stanford University Woods Institute for the Environment

Porse, Erik (2015) "[The Hard Work of Sustainable Groundwater Management](#)." California WaterBlog. Posted August 13, 2015.